

AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1. (Currently Amended) A magnetic tunnel junction device comprising:

a substrate; and

a seed layer, a pinning layer, a pinned layer, a tunnel barrier, and a free layer sequentially stacked on the substrate, the pinned layer having a nitrogen-plasma-processed first surface on which the tunnel barrier is directly arranged,

~~wherein a first surface of the tunnel barrier is adjacent to a first surface of the pinned layer, and~~ a nitrogen-rich region exists at an interface of the first surface of the pinned layer and ~~the first surface of the~~ tunnel barrier, the nitrogen-rich region containing more nitrogen than the pinned layer contains at a second surface of the pinned layer opposite to the interface, and the nitrogen-rich region containing more nitrogen than the tunnel barrier contains at a second surface of the tunnel barrier opposite to the interface.
2. (Previously presented) The device as claimed in claim 1, wherein nitrogen is combined with elements of the tunnel barrier in the nitrogen-rich region.
3. (Canceled).
4. (Previously presented) The device as claimed in claim 1, wherein the seed layer is a ferromagnetic layer formed of one selected from the group consisting of NiFe, Ru, and Ir.

5. (Previously presented) The device as claimed in claim 1, wherein the pinning layer is a semi-ferromagnetic layer formed of one selected from the group consisting of FeMn and IrMn.

6. (Previously presented) The device as claimed in claim 1, wherein the pinned layer is a ferromagnetic layer formed of one selected from the group consisting of NiFe and CoFe.

7. (Previously presented) The device as claimed in claim 2, wherein the pinned layer contains iron, and
nitrogen is combined with iron of the pinned layer to form FeN in the nitrogen rich region.

8. (Original) The device as claimed in claim 1, wherein the tunnel barrier is an insulating layer formed of AlO_x .

9 - 21. (Canceled).